



# EGCP-2

## Engine Generator Control Package

- Engine Control
- Gen-Set Synchronizing
- Automatic Sequencing of Multiple Units
- Automatic Start/Stop Control
- Digital Display of Engine and Generator Data
- Real kW Load Control
- Reactive kVAR Control
- Gen-Set Protection
- Engine Protection
- Modbus Communications

## APPLICATIONS

The EGCP-2 is a complete microprocessor-based engine-generator control and management package. It is designed for use with an automatic voltage regulator and a speed control to automate and protect diesel or gas engine based generator sets. Designed for small to medium size generator sets, the EGCP-2 can be configured to operate stand-alone or utility paralleled sets.

A network of EGCP-2 controls is capable of controlling up to eight un-manned generator sets for base-load, peak shaving or backup power generation.

## DESCRIPTION

The control's functions include:

### Engine Control

- Engine Pre-glow Control
- Fuel Solenoid Control
- Engine Starter Control
- kVA Controlled Cool-down Timer
- Oil Pressure Monitoring
- Water Temperature Monitoring
- Battery Voltage Monitoring
- Speed Monitoring with Overspeed Protection

### Synchronizing

- Digital signal processing to eliminate harmonic issues.
- Adjustable phase window, voltage window, and dwell times.
- Safe dead bus closing logic internal to the control.
- Synchronization across generator and mains breakers.
- Multiple shot re-closing with adjustable time delays
- Manual voltage and speed adjusts for manual synchronizing.

### Real kW Load Control

- True RMS power calculations.
- Load Bias Signal to Engine Speed Control, configurable for +/- 3 Vdc, 0-5 Vdc or 500 Hz PWM.
- Configurable load/unload ramp rates.
- Isochronous load-sharing of up to 8 units using percentage based load sharing.
- Base load control for optimum fuel efficiency.
- Import/Export control using a watt transducer.
- Soft Utility Transfer Function.
- Externally adjustable Base Load or Process Reference Levels with independent ramp rates.
- kW droop provided for manual load control.

## Reactive kVAR Control

- VAR sharing on isolated busses using percentage based reactive load sharing.
- Voltage Bias signal to AVR configurable for +/- 1, +/- 3 or +/- 9 Vdc.
- Power factor or VAR control when base loaded
- Externally adjustable VAR or PF setpoint levels.

## Automatic Generator Sequencing

- Automatically starts and stops gen-sets based on plant bus or process demand.
- Configurable plant bus demand start/stop levels and timers.
- On-line engine priority sequence configurability from any EGCP-2 or a PC to equalize run-time.

## Engine Protective Features

- High/Low Coolant Temperature
- High/Low Oil Pressure
- Overspeed
- Start Failure

## Generator Protective Features

- Over/Under Voltage
- Over/Under Frequency
- Reverse Power (Inverse time delay)
- Loss of Excitation
- Over current (Inverse time delay)
- Loss of Utility Power detection
- Speed/Frequency Mismatch
- Load Surge

## Communications

- Modbus or DDE communications via RS-422 based serial port.
- EGCP-2 Control View HMI for PC
- RS485 EGCP-to-EGCP load-sharing communications network.
- EGCP-2 Configuration file Upload/Download capability through a PC interface program.

## HARDWARE SPECIFICATIONS

**Size:** 281.8mm (11.1”) High x 358.1mm (14.1”) Wide x 69.5mm (2.735”) Deep

**Operator Control Panel:** 8 (20 Character) lines plus membrane keypad

**Power Supply Voltage:** 12 or 24 Vdc nominal (9-32Vdc)

**Control Part Numbers:** 8406-115 (150–300 Vac PT sensing range), 8406-116 (75–150 Vac PT sensing range)

**Connectors:** Terminal blocks are screwless CageClamp style blocks

**Temperature Range:** –40 to +70 °C

**Relative Humidity:** 95% non-condensing, at 30 to 60 °C

**Regulatory Compliance:** The EGCP-2 is marked in accordance with EMC & Low Voltage Directives and is UL/cUL and CSA listed for ordinary locations.

**Vibration:** Suitable for engine skid or control cabinet.

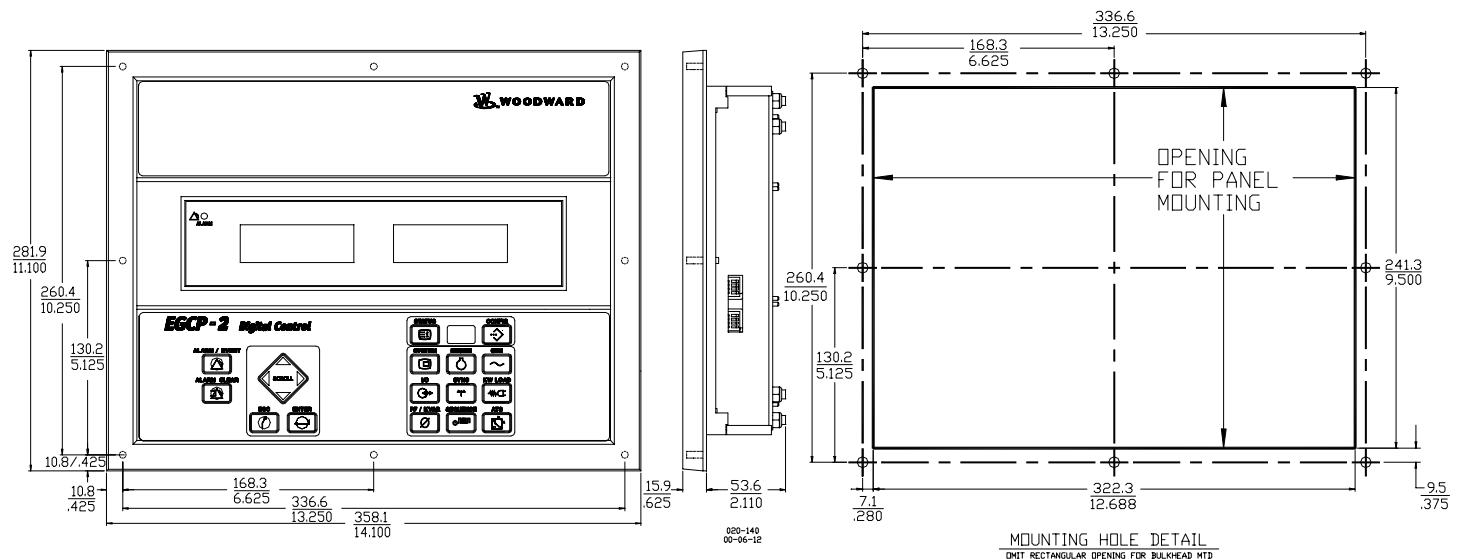


Figure 1. EGCP-2 Outline Drawing

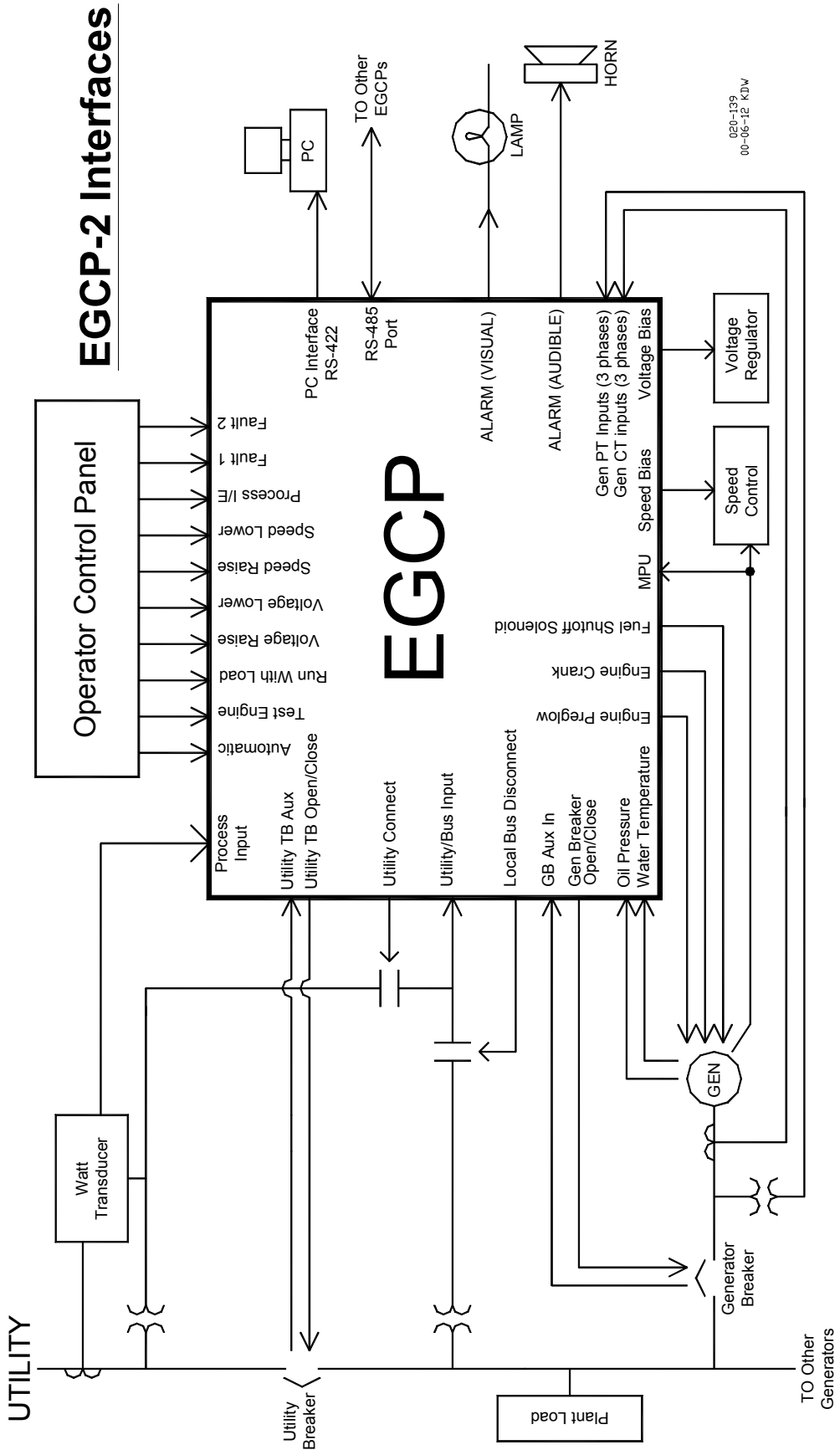


Figure 2. EGCP-2 Interactions

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## EGCP-2 Applications

- Single Unit - No Utility Parallel
- Single Unit – Utility Parallel
- Multiple Unit - No Utility Parallel
- Multiple Unit – Utility Parallel

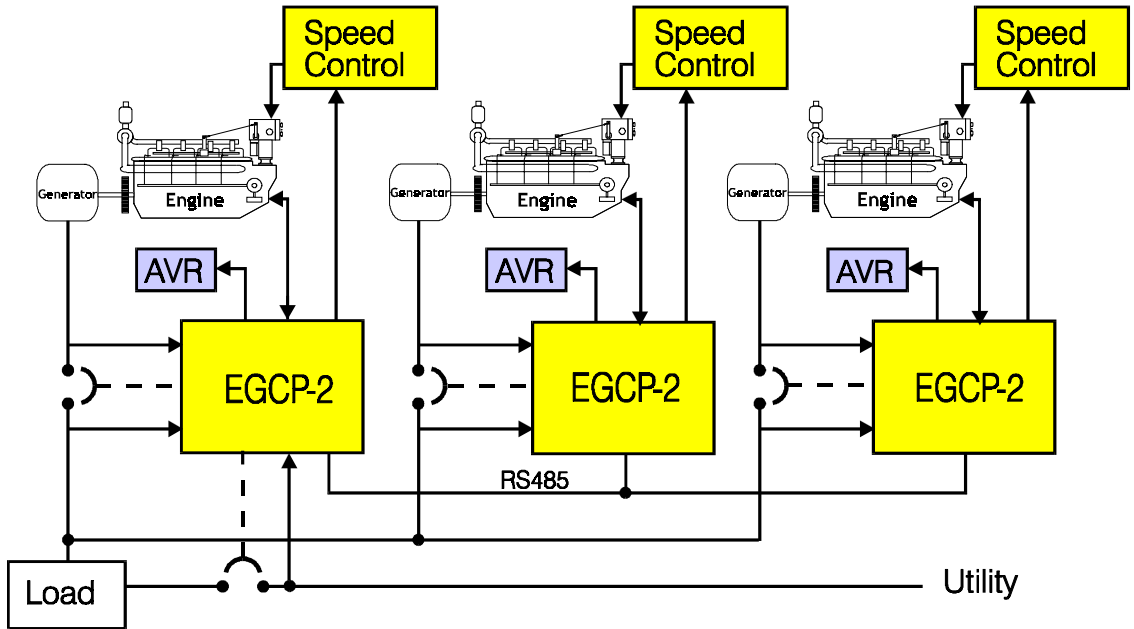


Figure 3. Typical Multiple Unit Parallel Application

For a complete set of EGCP-2 Installation/Operation or Application manuals connect to following Woodward Internet website and download the desired manual(s):

<http://www.woodward.com>

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